# CATHERINE L. QUINLAN

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## EDUCATION

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|---|---|
| May 2012 | Ed.D., Science Education<br>Teachers College, Columbia University, New York, NY<br>*Dissertation:* A schema theory analysis of students' think aloud protocols in an STS biology context<br>*Advisor:* Dr. Felicia M. Mensah |
| May 2001 | M.A., Science Education<br>Teachers College, Columbia University, New York, NY |
| May 1997 | B.A., English (pre-med)<br>Barnard College, Columbia University, New York, NY |

## PROFESSIONAL EXPERIENCE

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|---|---|
| 2016-Present | Assistant Professor in Science Education, Department of Curriculum and Instruction<br>Howard University School of Education, Washington, DC<br><br>Courses:<br>EDUC 314: Principles of Teaching Mathematics and Science I<br>EDUC 225: Earth Science and Elementary Science Practicum<br>EDUC 420: Interdisciplinary Research in STEM<br>EDUC 692: Integrated Methods II: Math, Science, and Technology<br>EDUC 210: Foundations and Urban Education<br>EDUC 223: Instructional Technology for 21st Century. |
| 2014-2016 | Science Education Instructor,<br>NASA Endeavor STEM Graduate Course, US Satellite Lab. Inc., NY<br>Course: *Life in Space: NASA ISS and Astrobiology* |
| 2004-2016 | Science Teacher<br>High School, Northern NJ<br>Classes: Biology, Chemistry, Environmental Science<br><br>New Jersey Standard Certification: Teacher of Biological Science<br>New Jersey Standard Certification: Teacher of Chemistry |
| 2003-2004 | Biology Teacher, High School, Southern NJ |

| 2002-2005 | Instructor, Accelerated Bachelor's Program for Adults, Concordia College, Bronxville, NY |
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| | Course: Heredity and Society (twice per year) |
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| 1999-2003 | Biology Teacher, Public & Private Schools, New York, NY |

## PEER-REVIEWED JOURNAL ARTICLES

Quinlan, C.L., Picho, K., & Burke, J. (2021, IN PRESS). Creating an instrument to measure social and cultural self-efficacy indicators for persistence of HBCU undergraduates in STEM. *Research in Science Education.*

Quinlan, C.L. (2020). Expanding the science capital in K-12 science textbooks: A notable doctor's insights Into biology and other accomplishments of African American scientists. *American Biology Teacher 82*(60), 381-388. https://doi.org/10.1525/abt.2020.82.6.381

Quinlan, C.L. (2020). Analysis of preservice teachers' lesson plan to determine the extent of Transfer of argumentation. *International Journal of Science Education.* https://doi.org/10.1080/09500693.2020.1753125

Quinlan, C.L. (2019). Use of schema theory and multimedia technology to explore preservice students' cognitive resources during an Earth science activity. *Contemporary Issues in Technology & Teacher Education, 19*(3), 413-438. https://www.learntechlib.org/p/184160/

Quinlan, C.L. (2019). An interdisciplinary investigation of African rock art images to learn about science & culture: Blending biology, geology, history, & ethics. *American Biology Teacher 81*(1), 37-43. https://doi.org/10.1525/abt.2019.81.1.40

Quinlan, C.L. (2018). Use of Crime Scene Investigations in Anatomy and Physiology: Potential for Going Beyond Knowing in NGSS Dimensions. *American Biology Teacher 80*(3): 217-222. https://doi.org/10.1525/abt.2018.80.3.221

Quinlan, C.L. (2016). Exploring Data to learn about the nature of science. *American Biology Teacher 78*(5): 404-409. https://doi.org/10.1525/abt.2016.78.5.404

Quinlan, C.L. (2015). Bringing Astrobiology down to Earth. *American Biology Teacher* 77(8): 5-12. https://doi.org/10.1525/abt.2015.77.8.2
October feature article:
http://www.nabt.org/websites/institution/File/pdfs/american_biology_teacher/2015/ABT_Online_Oct_2015.pdf

Quinlan, C.L. (2012). *A Schema Theory Analysis of Students' Think Aloud Protocols in an STS Biology Context* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses.

## FUNDED RESEARCH, SUPPORTS, AND AWARDS

2020 – present. Principal Investigator, U.S. Department of Education, Howard University Science and Engineering Cultural Efficacy (HUSECE) Program – Minority Science and Engineering Improvement Program (MSEIP) Grant, $249,973.00 per year.

2019 - present. Principal Investigator, National Science Foundation (NSF). Catalyst Project: Creating and Evaluating a Culturally Representative STEM Curriculum Supported by the Next Generation Science Standards, $205,168.00.

Summer 2019. Summer Faculty Research Fellowship. Howard University, Office of Provost Research Support, $15,000.

2017, 2019. Faculty Scholar. Howard University Junior Faculty Writing and Creative Works Summer Academy. Faculty Development. Office of Associate Provost, $500. each

2017     Teaching with Technology Award. Center for Excellence in Teaching, Learning, and Assessment (CETLA). Howard University, $1,000.

2016     Jhumki Basu Scholar Award. The National Association for Research in Science Teaching (NARST) Equity and Ethics Committee, $700.

2015     Certificate for Excellence in Solar System Research. Center for Lunar Science and Exploration, Lunar and Planetary Institute, Houston, TX

## CURRICULUM AND CREATIVE WORKS

Quinlan, C.L. (2020, December). *Silent Sugar: The Impacts on Societies.* [Animation]. https://www.youtube.com/watch?v=2Vlsu-krYKc

Quinlan, C.L. (Author, 2020, August 1). *Keystone Passage: To Africa and Back.* Children's Chapter Book Series. [Website]. http://keystonepassage.com

Quinlan, C.L. (Producer, 2020, June 2). *Visibility In STEM: Native Practices and Plants That Heal.* [Video]. Vimeo. https://vimeo.com/425202603

Quinlan, C.L. (Producer, 2020, May 24). *Visibility in STEM: Oyster Beds and Tabby Sustainability Practices*. [Video]. Vimeo. https://vimeo.com/422245103

Quinlan, C.L. (Producer, 2020, May 13). *Visibility In STEM: Food Adaptations and the Making of Sugar*. [Video]. Vimeo. https://vimeo.com/422237432

Quinlan, C.L. (2020, February 17). *Visibility In STEM Episode 4: Knowledge of Plants – Sweet Grass.* [Video]. YouTube. https://www.youtube.com/watch?v=f0Nwxl62jmY

Quinlan, C.L. (2020, January 20). *Visibility In STEM Episode 2: Our Ancestors, Agricultural Engineers*

[Video]. YouTube. https://www.youtube.com/watch?v=7nmPfMWRRtc

Quinlan, C.L. (2020, January 21). *Visibility In STEM Episode 3: Sustainability Practices – Oysters.* [Video]. YouTube. https://www.youtube.com/watch?v=Q46IsJF_vZk

Quinlan, C.L. (2018, February 27). *Visibility In STEM Episode 1: African Rock Art Image Analysis.* [Video]. YouTube. https://www.youtube.com/watch?v=aBqrk343CKw

Quinlan, C.L. (2016, November 17). Visibility In STEM. [Website]. http://www.visibilityinstem.com


## INVITED PRESENTATIONS

Keynote Speaker (April 2021). Going Beyond Ceremony: Creating Educative STEM Materials That Use and Evoke African American Capital. Administrative Sponsored Session: Continental and Diasporic Africa in Science Education (CADASE) RIG: *The National Association for Research in Science Teaching (NARST)* International Conference. Virtual

Presenter (2021). Using African Rock Art Image Analysis and African American Heritage to Explore Environmental Science Concepts. Environmental Science Seminar. University of Washington, Tacoma, WA. Virtual.

Presenter (2020). How Broader Issues of Race and Culture Interact with the Practice of Science and Engineering Research and Education at HBCUs. NSF Panel. HBCU-UP/CREST PI Meeting. Target Infusion Projects, Washington, DC.

Keynote Speaker (2020). Inclusion and Social Justice in the Science Curriculum. The Barnard Bold Conference, Barnard College, Columbia. University, New York, NY.


## PEER-REVIEWED CONFERENCE PRESENTATIONS

Quinlan, C.L. (2021. Creating and evaluating a culturally representative STEM curriculum supported by The Next Generation Science Standards. AAAS/NSF, HBCU-UP/CREST PI-PD Meeting, Virtual.

Quinlan, C.L. (2021). Exploring the use of pragmatism in research methodology to create STEM curricula That is culturally representative of African American Gullah Geechee. *The Association for Science Teacher Education (ASTE)* International Conference, Virtual.

Quinlan, C.L. (2020). Using historical and cultural narratives of African Americans to create culturally representative biology curriculum. *National Association of Biology Teachers (NABT), Professional Development Conference,* Virtual.

Quinlan, C.L. (2020). Exploring the lived experiences and narratives of the African American Gullah Geechee peoples to create culturally relevant STEM curriculum. *National Association for Research in Science Teaching International Conference,* Portland, OR.

Quinlan, C.L. (2020). Exploring the science concepts, scientific data, and meaning of environmental sustainability for the African American Gullah Geechee. *The Association for Science Teacher Education (ASTE)* International Conference, San Antonio, TX.

Quinlan, C.L. (2019). Visibility in STEM: Use of Archive Data to Explore the Nature of Science and the Scientific Concepts in Charles Drew's Scientific Contributions. *The Association for Science Teacher Education (ASTE)* International Conference, Savannah, GA.

Quinlan, C.L. (2018). African rock art image analysis – Using African rock art to explore science and culture. ASTE session at *National Science Teacher Association (NSTA)* Area Conference, Baltimore, MD.

Quinlan, C.L. (Accepted, 2018). Invisibility in the STEM curriculum: Identifying patterns of success and challenges for people of color and non-minorities: What remains unchanged and why. *American Educational Research Association* (AERA) Annual Meeting, New York, NY.

Quinlan, C.L. (2018). Use of schema theory to explain argumentation dialogues of preservice students during a science investigation. *The National Association for Research in Science Teaching (NARST)* International Conference, Atlanta, GA.

Quinlan, C.L. (2018). Use of schema theory and think alouds to study Knowledge progression patterns for socioscientific issues. *The National Association for Research in Science Teaching (NARST)* International Conference. Atlanta, GA.

Quinlan, C.L. (2018). Making people of African origins visible in the STEM curriculum: An exploration into the science and history of African rock art and reverse engineer and History of Benjamin Banneker. 2018 *The Association for Science Teacher Education (ASTE)* International Conference, Baltimore, MD.

Quinlan, C. L., Onuzo, J., Stephenson, F., Banks, W. (2017). Visibility in STEM: Charting the Course for Making Minorities Visible in the STEM Curriculum. Charting the Course for Innovation Strand. To Present at ASTE Session at *National Science Teacher Association (NSTA)* Area Conference, Baltimore, MD.

Quinlan, C.L. (2017). The use of a sociocultural construct to examine four Hispanic high school students' experiences in a lunar research program. *Jhumki Basu Scholar Symposium. The National Association for Research in Science Teaching (NARST)* Annual International Conference, San Antonio, TX.

Quinlan, C. L. (2015). A case study of two (four) students' views of the nature of science and argumentation in a high school research program on asteroids. *NE-ASTE Regional Conference.* Teachers College, Columbia University, New York, NY.

Quinlan, C. L. (2014). Using an astrobiology approach in the high school biology classroom – an exploratory study. *NE-ASTE Regional Conference,* Teachers College, Columbia University, New York, NY.

Quinlan, C. L. (2012). A schema theory analysis of students' think aloud protocols in an STS biology

context. *NE-ASTE Regional Conference Roundtable,* Cornwall, NY.


## PROFESSIONAL MEMBERSHIPS

National Association for Research in Science Teaching (NARST)
Association for Science Teacher Education (ASTE)
National Association of Biology Teachers (NABT)
National Association of Science Teacher (NSTA)


## CONSULTATION

Mentor, Howard University Institutional Research Engagement Program at Howard University
(IREPHU), US Department of Education Grant. Spring 2018

Senior Faculty Associate, Professional Development in STEM. Howard University Capstone Institute.
Grant: Life STEM EAGER: An Exploration of the Relationship between Asset-Focused
Instructional Strategies and Students' Social Emotional Experiences, Engagement and Life STEM
Career Awareness and Interest.


## SELECTED SERVICE TO THE PROFESSION

- Journal Manuscript Reviewer
  - *American Biology Teacher,* 2014 – present
  - *Anthropology Southern Africa,* 2020
  - *Culture Studies of Science Education*
  - *NSF Reviewer*
  - *Science Education, 2020*
- Conference Proposal Reviewer
  - National Association for Research in Science Teaching, 2016, 2017
- Faculty Reviewer,
  - Course Evaluation Platform. Howard University Office of Institutional Assessment, Howard Assessment Committee, Spring 2020
- Director, Howard University Innovative Summer Enrichment STEM CAMP, Howard University School of Education, 2019-present
- Producer, 2020 Teacher Induction Ceremony/Graduation Celebration [Video]. Department of Curriculum and Instruction. Howard University School of Education, Spring 2020.
- Subcommittee Symposium Chair and Member, Equity and Ethics Symposium & Jhumki Basu Scholar Award Symposium. National Association for Research in Science Teaching (NARST), 2018-2020.
- Secretary, Special Administrative Planning Session Committee. The Continental and Diasporic Africa in Science Education Research Interest Group (CADASE RIG). National Association for Research in Science Teaching (NARST), 2020 - present.

- External Advisory Board Faculty Member, The National Oceanic and Atmospheric Administration Sciences (NOAA) at Howard University's NOAA Cooperative Science Center in Atmospheric Sciences and Meteorology, (NCAS-M). 2018-present.
- Team Leader, Academic Sub-committee of Howard University Academic & Prioritization Program Prioritization Task Force (PPTF), 2019.
- Chair, Evaluation of Instruction Committee. Howard University School of Education, 2018-2020
- Coordinator, Honors Program, Department of Curriculum and Instruction. Howard University, 2016-present.
- Co-coordinator, Department of Curriculum and Instruction Science Certification Committee, Howard University, 2016-2018.
- Member, Faculty subcommittee, Research Symposium Committee for Research Week, Howard University, 2016-present.